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CCE's "Energy Efficiency Rebates Tool":

Estimating cost savings & job creation from local energy efficiency work

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Retrofitting residential and commercial buildings for improved energy efficiency can result in significant broad-scale energy savings as well as job creation at the local level. Helping local government officials accurately estimate these impacts is the goal of a new tool, the "Energy Efficiency Rebates Tool" (http://ccetompkins.org/sites/all/files/164/NY_Energy_Efficiency%20v2.xls) developed by Cornell Cooperative Extension (CCE) of Tompkins County. Local government officials can greatly benefit their communities by using this tool to make informed decisions about investing in energy efficiency work at the local level.

For nearly every town and county in New York State, the "Energy Efficiency Rebates Tool" calculates the dollar value of energy saved by retrofitting a specified percentage of homes in a given municipality. The spreadsheet calculates the total cost of retrofitting a specified number of homes, and how much money the municipality would be eligible to receive in the form of state and federal subsidies and credits for the retrofitting work. Users can calculate the number of job-years of energy efficiency work that would be created for a specified level of work in each municipality, and the number of permanent jobs that would be created as a result of the decreased expenditures on externally sourced energy. In addition, by using this tool, each municipality can calculate the reduction in carbon dioxide emissions that would result from the specified level of energy efficiency retrofitting.

By using the Energy Efficiency Rebates tool, Tompkins County officials estimated that the county's 42,059 households could save over $34 million per year on energy costs if their homes and apartments were retrofitted. In addition, almost 1,700 job-years (421 jobs of 4 years' duration) would be required to accomplish the work. The tool estimated that the annual savings in energy use would result in increased local economic activity supporting the creation of approximately 412 permanent jobs. The subsidies and credits available to homeowners and renters were estimated at $204 million, almost 61 percent of the $336 million total retrofitting price tag. And, the energy efficiency work is estimated to result in an annual reduction of over 267,000 tons of carbon dioxide.

The spreadsheet is designed with pull down menus for selecting the county and/or town to be analyzed. The user inputs the percentage of homes to be retrofitted, the projected average cost per home of retrofitting, and a range of other factors. The ability to vary the inputs permits various scenarios and outcomes to be examined. This information is extremely valuable to localities for determining how best to use available energy efficiency funds, and in developing energy-related grant proposals. The "Energy Efficiency Rebates Tool" can help build awareness of, and interest in, the enormous potential impact of broadscale energy efficiency work at the local level. *For more information or a tutorial, contact Dominic Frongillo at CCE Tompkins County at 607-272-2292 or df66@cornell.edu*

Energy Efficiency Rebates Tool:

Developed by Anosh Shah, CCE Tompkins County.

Instructions:			Color Key
• Follow steps in red			Date (Blue)
• Edit yellow cells			Calculated (Green)
			User Input (Yellow)

Step 1: Select Your County and Municipality

County:	Tompkins County
Municipality	Tompkins County

Step 2: Select Average Household Size

Household Size:	2

Step 3: Enter Number of Households for Each Income Range (if auto-completed data needs to be updated)

Income Brackets	Income Range	Qualifies for	Households	Rebate***
Less than 60%*	<=$30,804	WAP, EmPower, Heap	16908	100%
Less than 80%**	$30,804–$45,950	AHP, Federal Tax Credit	5810	65%
Greater than 80%	> $45,950	Federal Tax Credit, NYSERDA Self-Financing	19432	25%
			Total: 42,059	

*Based on New York State median (for WAP qualification)
**Based on county median (for AHP qualification)
***Rebates assume qualifications are met for listed programs

Step 4: Enter Assumed Cost of Improvements

Assumed Cost of Improvements	$8,000.00

Step 5 Percentage of Buildings Not Requiring Work*

Income Range	Percentage Not Requiring Work	Households Requiring Work
<=$30,804	0%	16908
$30,804–$45,950	0%	5809.5
>$45,950	0%	19341.5

*Some houses may already be energy efficient. These houses are taken into account here.

Step 6: Percentage of Population Town or Country Wishes to Finance*

Income Range	Percentage Financed	Households Requiring Work
<=$30,804	100%	16908
$30,804–$45,950	100%	5809.5
>$45,950	100%	19341.5

* The town or county can choose what percentage of each income range it wishes to finance. Altering the percentage financed for the middle and high income range can lead to variations in the final cost. Note that variations in the lowest income range causes no change to the final cost since WAP covers 100% of the cost for that income range.

Step 7: View Summary Statistics

Project Summary,

For Tompkins County, this project will:
- Cost the county $132,315,600 ($3,146 per household):
  - The income range <= $30,804 will cost the county $0.
  - The income range $30,804–$45,950 will cost the county $16,266,600 ($2,800 per household).
  - The income range > $45,950 will cost the county $116,049,000 ($6,000 per household).
- Create 1,682 jobs-years, 412 permanent jobs, and $34,320,144 in annual energy savings for the county.
- Eliminate 267,096 tons of carbon dioxide.

Rebate Summary

Income Range	Households Financed	Pre-Rebate Cost	Total Rebate	After-Rebate Cost
<=$30,804	16908	$135,264,000	-$135,264,000	$0
$30,804–$45,950	5810	$46,476,000	-$30,209,400	$16,266,600
>$45,950	19432	$154,732,000	-$38,683,000	$116,049,000
	42059	$336,472,000	-$204,156,400	**$132,315,600**
		Per Household Financed		
		$8,000.00	$8000.00	$0.00
		$8,000.00	$5,200.00	$2,800.00
		$8,000.00	$2,000.00	$6,000.00
				$3,146

Job Creation, Energy Savings, and Carbon Dioxide Reduction

Job-Years Created*	Permanent Jobs Created	Total Annual Energy Savings for County	CO_2 Eliminated (tons)**
1,682	412	$34,320,144	267,096

Based on the following assumptions:
5 – Job-Years Created Per $1M of Energy Efficiency Work
12 – Permanent jobs created for every $1M of energy savings (between 10 and 20)
$816 – Annual energy savings per house***
12,701 – lbs of CO_2 eliminated per house***

*Number of people working for one year
***Equivalently, 72,977 tons of Carbon
**From Home Energy Saver for 14850: http://hes.lbl.gov/hes/vh.shtml

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